**IN THE CLAIMS**

What is claimed is:

1. (Previously presented) A method of storing information in a database to characterize attributes outputted by different classes of equipment, comprising:

storing in a first database table of a database memory device a plurality of attribute data records, wherein storing each attribute data record includes:

storing in that record a first field identifying a class of equipment to which remaining fields in the record pertain;

storing in that record a second field identifying an attribute whose value is outputted by the class of equipment identified by the first field of that record, wherein said attribute is a sensor measurement or operating parameter of said class of equipment identified by said first field;

storing in that record a third field specifying an ID which the class of equipment identified by the first field of that record assigns to the attribute identified by the second field of that record;

storing in that record a fourth field specifying conversion parameters that define a conversion of the value of the attribute identified in the second field into physical units of measurement;

storing in a second database table that is a child table of the first database table a plurality of subordinate data records, wherein storing each subordinate data record includes:

storing in the subordinate data record subordinate fields that are subordinate to the fourth field of an attribute data record, the subordinate fields including a min subordinate field that identifies a minimum physical

value that can be output for the attribute, a max subordinate field that identifies a maximum physical value that can be output for the attribute, and a units subordinate field that identifies physical units in which physical values output for the attribute are expressed; and

using the first field, second field, third field, fourth field and subordinate fields of an attribute data record, which in combination define a communications interface specification, by a diagnostic apparatus to retrieve distinct attribute information from a distinct class of equipment.

2.-3. (Canceled)

4. (Original) The method of claim 1, wherein, for each attribute data record, the ID stored in the third field uniquely specifies a command such that, in response to the class of equipment stored in the first field receiving said command, said class of equipment outputs the attribute stored in the second field.

5. (Previously presented) The method of claim 1, wherein, for at least one attribute data record, storing the second field further includes:

storing a fifth field identifying a position of a chamber connected to the class of equipment identified in the first field.

6. (Previously presented) The method of claim 1, wherein, for each attribute data record, the first field identifies at least one of a model of equipment and a version of equipment.

7. (Canceled)

8. (Previously presented) The method of claim 1, wherein, for at least one attribute data record, storing the first field includes:

storing a first subordinate field that identifies a model of equipment; and

storing a second subordinate field that identifies a version of the model of equipment identified in the first subordinate field.

9. (Previously presented) The method of claim 1, wherein, for at least one attribute data record, storing the first field includes:

storing first and second subordinate fields that collectively identify at least one of a range of versions of an equipment model and a range of revision dates of the equipment model.

10.-14. (Canceled)

15. (Previously presented) The method of claim 1, wherein, for at least one of the attribute data records, the attribute identified by the second field is one of a measurement of a process being performed in a semiconductor fabrication process chamber and an operating condition of a process being performed in a semiconductor fabrication process chamber.

16. (Canceled)

17. (Previously presented) A method of storing information in a database to characterize

attributes outputted by different classes of equipment, comprising:

storing in a first database table of a database memory device a plurality of attribute data records, wherein storing each attribute data record includes:

storing in that record a first field identifying a class of equipment,

storing in that record a second field identifying an attribute whose value is outputted by the class of equipment identified by the first field of that record, and

storing in that record a third field specifying a conversion parameter that defines a conversion of the value of the attribute identified in the second field into physical units of measurement;

storing in a second database table that is a child table of the first database table a plurality of subordinate data records, wherein storing each subordinate data record includes:

storing in the subordinate data record subordinate fields that are subordinate to the third field of an attribute data record, the subordinate fields including a min subordinate field that identifies a minimum physical value that can be output for the attribute, a max subordinate field that identifies a maximum physical value that can be output for the attribute, and a units subordinate field that identifies physical units in which physical values output for the attribute are expressed; and

using the first field, second field, third field and subordinate fields of an attribute record, in combination, by a diagnostic apparatus to retrieve distinct attribute information from distinct a class of equipment.

18. (Currently amended) The method of claim 17, wherein, for at least one of the attribute data records, the conversion parameter stored in the third field specifies at least one of [[a]] a scale factor, and a range of physical values.

19.-20. (Canceled)

21. (Previously presented) A diagnostic apparatus for monitoring electronic equipment, comprising:

a computer-readable data storage device in which a plurality of attribute data records are stored in a first database table and a plurality of subordinate data records are stored in a second database table that is a child table of the first database table, wherein each attribute data record includes:

a first data field that stores data identifying a class of equipment,

a second data field that stores data identifying an attribute whose value is outputted by the class of equipment identified by the first field of that record,

a third data field that stores data specifying an ID which the class of equipment identified by the first field of that record assigns to the attribute value identified by the second field of that record; and

a fourth data field specifying conversion parameters that define a conversion of the value of the attribute identified in the second field into physical units of measurement;

wherein each subordinate data record includes one or more subordinate fields that are subordinate to the fourth field of an attribute data record, at least one subordinate data record including a min subordinate field that identifies a minimum physical value that can be output for the attribute, a max subordinate field that identifies a maximum physical value that can be output for the attribute, and a units subordinate field that identifies physical units in which physical values output for the attribute are expressed;

wherein the first field, second field, third field, fourth field and one or more

subordinate fields, in combination, define communications interface specifications that enable a diagnostic apparatus to retrieve distinct attribute information from distinct classes of equipment; and

a computer connected to read data from the data storage device.

22.-24. (Canceled)

25. (Original) The apparatus of claim 21, wherein, for each attribute data record, the ID stored in the third field uniquely specifies a command such that, in response to the class of equipment stored in the first field receiving said command, said class of equipment outputs the attribute stored in the second field.

26. (Previously presented) The apparatus of claim 21, wherein at least one attribute data record further includes a fifth data field that stores data identifying a position of a chamber connected to the class of equipment identified in the first field.

27. (Previously presented) The apparatus of claim 21, wherein, for each attribute data record, the first field stores data identifying at least one of a model of equipment and a version of equipment.

28. (Canceled)

29. (Original) The apparatus of claim 21, wherein, for at least one attribute data record, the first data field includes:

a first subordinate field that stores data identifying a model of equipment; and

a second subordinate field that stores data identifying a version of the model of equipment identified in the first subordinate field.

30. (Previously presented) The apparatus of claim 21, wherein, for at least one attribute data record, the first data field includes:

first and second subordinate fields that store data that collectively identify at least one of a range of versions of an equipment model and a range of revision dates of the equipment model.

31.-35. (Canceled)

36. (Previously presented) The apparatus of claim 21, wherein, for at least one of the attribute data records, the attribute identified by the data stored in the second field is at least one of a measurement of a process performed in a semiconductor fabrication process chamber and an operating condition of a process performed in a semiconductor fabrication process chamber.

37.-43. (Canceled)

44. (Currently amended) A computer-readable data storage medium in which is stored instructions executable by a computer to perform a method for storing database records in a data storage device, wherein:

the method comprises storing in a data storage device a plurality of attribute data

records and a plurality of subordinate data records;

said storing each attribute data record includes:

storing in that record a first field identifying a class of equipment, wherein at least one class of equipment is manufacturing equipment having a plurality of physical communications interfaces for outputting attribute data formatted according to a plurality of communications protocols, the plurality of communications protocols including at least a command-driven digital communications protocol, a continuous streaming digital communications protocol and an analog communications protocol,

storing in that record a second field identifying an attribute whose value is outputted by the class of equipment identified by the first field of that record,

storing in that record a third field specifying a communications protocol and a physical communications interface that is used for the attribute identified by the second field of that record, wherein the data storage device includes a separate record for each of the plurality of physical communications interfaces of the at least one class of equipment, and

storing in that record a fourth field specifying an ID which the class of equipment identified by the first field of that record assigns to the attribute value identified by the second field of that record, wherein the ID identifies a first one of the plurality of ~~signal lines~~ physical communications interfaces; and

said storing each subordinate attribute data record includes:

storing in the subordinate data record one or more subordinate fields that are subordinate to the second field of an attribute data record;

wherein the first field, second field, third field, fourth field and one or more subordinate fields, in combination, define communications interface specifications that enable a diagnostic apparatus to retrieve distinct attribute information from distinct classes of

equipment.

45. (Previously presented) A computer-readable data storage medium in which is stored instructions executable by a computer to perform a method for storing database records in a data storage device, wherein:

the method comprises storing in a data storage device a plurality of attribute data records and a plurality of subordinate data records;

said storing each attribute data record includes:

storing in that record a first field identifying a class of equipment,

storing in that record a second field identifying an attribute whose value is outputted by the class of equipment identified by the first field of that record, and

storing in that record a third field specifying a conversion parameter that defines a conversion of the value of the attribute identified in the second field into physical units of measurement;

said storing each subordinate data record includes:

storing in the subordinate data record subordinate fields that are subordinate to the third field of an attribute data record, the subordinate fields including a min subordinate field that identifies a minimum physical value that can be output for the attribute, a max subordinate field that identifies a maximum physical value that can be output for the attribute, and a units subordinate field that identifies physical units in which physical values output for the attribute are expressed; and

the method further comprises using the first field, second field, third field and subordinate fields of an attribute record, in combination, by a diagnostic apparatus to retrieve distinct attribute information from distinct a class of equipment.

46. (Previously presented) The method of claim 1, further comprising:

providing a first manufacturing equipment;

identifying a first class of equipment to which the first manufacturing equipment belongs;

retrieving from the first database table one of said attribute data records and from the second database table one of said subordinate data records such that the first, second and third fields of the retrieved attribute data record respectively identify: (i) said first class of equipment, (ii) a first attribute, and (iii) a first ID; and

using the first ID to retrieve a value of the first attribute from the first manufacturing equipment.

47. (Previously presented) The method of claim 4, further comprising:

providing a first manufacturing equipment;

identifying a first class of equipment to which the first manufacturing equipment belongs;

retrieving from the database memory device one of said attribute data records and one of said subordinate data records such that the first, second and third fields of the retrieved attribute data record respectively identify: (i) said first class of equipment, (ii) a first attribute, and (iii) a first command; and

sending the first command to the first manufacturing equipment;

wherein the first manufacturing equipment outputs a value of the first attribute in response to sending the first command.

48. (Previously presented) The method of claim 1, further comprising:

providing a first manufacturing equipment having a plurality of physical communications interfaces for outputting attribute data;

identifying a first class of equipment to which the first manufacturing equipment belongs;

retrieving from the database memory device one of said attribute data records and one of said subordinate data records such that the first, second and third fields of the retrieved attribute data record respectively identify: (i) said first class of equipment, (ii) a first attribute, and (iii) a first ID that identifies a first one of said physical communications interfaces; and

receiving a value of the first attribute from the first physical communications interface.

49. (Previously presented) The method of claim 1, further comprising:

providing a first manufacturing equipment having a plurality of signal lines for outputting attribute data;

identifying a first class of equipment to which the first manufacturing equipment belongs;

retrieving from the database memory device one of said attribute data records and one of said subordinate data records such that the first, second and third fields of the retrieved attribute data record respectively identify: (i) said first class of equipment, (ii) a first attribute, and (iii) a first ID that identifies a first address transmitted by the first manufacturing equipment when it transmits the first attribute;

receiving attribute data from the first manufacturing equipment;

using the first ID to locate a value of the first attribute within the attribute data

received from the first manufacturing equipment.

50. (Previously presented) The method of claim 1, further comprising:

providing a first manufacturing equipment having a plurality of signal lines for outputting attribute data;

identifying a first class of equipment to which the first manufacturing equipment belongs;

retrieving from the database memory device one of said attribute data records and one of said subordinate data records such that the first, second and third fields of the retrieved attribute data record respectively identify: (i) said first class of equipment, (ii) a first attribute, and (iii) a first ID that identifies a first offset that specifies a position of the first attribute within a frame of data transmitted by the first manufacturing equipment;

receiving attribute data from the first manufacturing equipment;

using the first offset to locate a value of the first attribute within the attribute data received from the first manufacturing equipment.

51. (Previously presented) The method of claim 1, wherein the one or more subordinate fields include at least one of an attribute name field, an attribute chamber model field and a read/write field.

52. (Previously presented) The computer readable data storage medium of claim 45, wherein, for at least one of the attribute data records, the conversion parameter stored in the third field specifies at least one of a scalar factor, and a range of physical values.

53. (Previously presented) The method of claim 1, wherein:

storing a first attribute data record includes storing first values of the first field, second field, third field, a fourth field and one or more subordinate fields that enable the diagnostic apparatus to communicate with a first class of equipment via a command-driven protocol; and

storing a second attribute data record includes storing second values of the first field, second field, third field, fourth field and one or more subordinate fields that enable the diagnostic apparatus to communicate with a second class of equipment via a continuous streaming protocol.

54. (Previously presented) The method of claim 1, wherein:

storing a first attribute data record includes storing first values of the first field, second field, third field, fourth field and one or more subordinate fields that enable the diagnostic apparatus to communicate with a first class of equipment via an analog interface; and

storing a second attribute data record includes storing second values of the first field, second field, third field, fourth field and one or more subordinate fields that enable the diagnostic apparatus to communicate with a second class of equipment via a digital interface.

55. (Previously presented) The method of claim 1, wherein at least one class of equipment is manufacturing equipment having a plurality of physical communications interfaces for outputting attribute data formatted according to a plurality of communications protocols, the plurality of communications protocols including at least a command-driven

digital communications protocol, a continuous streaming digital communications protocol and an analog communications protocol, the method further comprising:

storing in the record a fifth field specifying a communications protocol and a physical communications interface that is used for the attribute identified by the second field of that record, wherein the first database table includes a separate record for each of the plurality of physical communications interfaces of the at least one class of equipment.

56. (Previously presented) The method of claim 1, further comprising:

storing in a third database table that is a child table of the first database table a plurality of additional subordinate data records, wherein storing each additional subordinate data record includes:

storing in the subordinate data record one or more subordinate fields that are subordinate to the second field of an attribute data record, the one or more subordinate fields including at least one of a chamber position subordinate field or a chamber model subordinate field.